

ALLIANCE COUNCIL MEETING

Online meeting hosted by Chile

Monday 21 – Wednesday 23 February 2022

OVERVIEW

The eleventh Global Research Alliance on Agricultural Greenhouse Gases (GRA) Council meeting was held online using a virtual platform over three days, 21-23 February 2022 hosted by Chile.

This report is a summary of the key discussions and outcomes from the meeting, full recordings of the meeting sessions are available to view [HERE](#).

PARTICIPANTS

The meeting was attended by 137 representatives from 39 countries and other invited guests:

- **GRA Member Countries:** Argentina, Australia, Bangladesh, Brazil, Canada, Chile, China, Colombia, Costa Rica, Côte d'Ivoire, Denmark, Dominican Republic, Ecuador, Egypt, Eswatini, Germany, Indonesia, Ireland, Italy, Japan, Lithuania, Malawi, the Netherlands, New Zealand, Nigeria, Philippines, Samoa, Senegal, South Africa, Spain, Switzerland, Thailand, Tunisia, Turkey, United Kingdom, United States of America, Uruguay, Viet Nam, Zimbabwe
- **Observer Countries:** None
- **Invited Partners:** CABI, CARDI, CCAC, CGIAR, CIHEAM, EC, FACCE-JPI, FAO, FONTAGRO, SAI Platform, World Farmers' Organisation

Refer to Appendix 1 for a full participants list.

KEY OUTCOMES OF MEETING

The outcomes identified during the meeting will be confirmed through the development of the annual Operational Plan that sits under the GRA Strategic Plan.

Outcomes
Council
Spain accepted as GRA Vice-Chair for 2022 and Chair for 2023.
Innovation Working Group to continue developing ToR and workplan and to consider connecting with AIM4C during 2022.
Research Stocktake workplan agreed and work to commence.
Council passed acceptance of the following five proposed GRA Flagship Projects; <ol style="list-style-type: none"> i. GHG Mitigation in Cattle Farming (Council Champions: Argentina, Australia, Bangladesh, Canada, Germany, Peru, South Africa) ii. Remote Sensing in Grasslands (Council Champions: Argentina, Canada, Costa Rica, FONTAGRO, New Zealand, Uruguay) iii. Nitrogen Fertiliser Emissions (Council Champions: Canada, Chile, Costa Rica, FONTAGRO, New Zealand, Spain) iv. Feed Additives (Council Champions: Canada, Ireland, Netherlands, New Zealand, Spain, US, Zimbabwe) v. Hungate Collection 2 (Council Champions: Canada, Colombia, Ireland, New Zealand, UK)
Actions to remain on the Operational Plan for 2022 to be confirmed by members via email following meeting: <ul style="list-style-type: none"> • Mediterranean Agriculture Network – who leads? • Policy questions from Council to Research Groups • Research Summaries from Research Groups on co-benefits • Partners page on GRA Website • Establish partners forum • Finalise support for the MAC-B Flagship proposal (Council Champions: Australia, Chile, Indonesia, US, tbc)
Request for members to begin considering funding and hosting CLIFF-GRADS in Round 5 call, opened later in 2022.
Research Groups
Research Networks continue to need support/encouragement to seek opportunities to involve LMICs (success ERA-GAS call 2021).
There is a need to develop greater links from research to knowledge transfer and policy.
Seek collaboration with private companies, especially on topics such as soil carbon and circularity. Also, opportunity to get involved with new partners.
Develop projects across Networks, e.g., through Flagship Projects.
Establish a time duration for Co-Chair role and resourcing.
Secretariat
GRA to become a ‘Supporter’ of the Global Methane Pledge (GMP). GRA Special Representative and Secretariat to liaise with GMP.

New Zealand to continue hosting the GRA Special Representative and Secretariat, with additional support from members. ToR for Special Representative Role and Extended GRA Secretariat Function extended for 3 years.

Invite Environmental Defence Fund to be a GRA Partner.

CONTACTS FOR COUNTRY INVOLVEMENT

Working Groups

- Innovation Working Group: Luke.Spadavecchia@defra.gov.uk
- Research Stocktake: nina.grassnick@thuenen.de

Flagship Projects

- GHG Mitigation in Cattle Farming: claus.deblitz@thuenen.de
- Remote Sensing in Grasslands: hayden.montgomery@globalresearchalliance.org
- Nitrogen Fertiliser Emissions: malfaro@inia.cl
- Feed Additives: david.yanez@eez.csic.es
- Hungate Collection 2: S.Huws@qub.ac.uk
- MAC-B: czm2001@columbia.edu

Priority Actions

- Mediterranean Agriculture Network: secretariat@globalresearchalliance.org
- Policy questions from Council to RGs: secretariat@globalresearchalliance.org
- Request to countries / partners to send information on scholarships to support early career scientist to GRA Secretariat: secretariat@globalresearchalliance.org

SUMMARY OF DISCUSSIONS

STATEMENT FROM AUSTRALIA & OFFICIAL HANDOVER OF THE GRA CHAIR

1. Following a welcome from the Master of Ceremonies (Alfonso Arellano), the outgoing GRA Council Chair Professor Andrew Campbell, CEO of the Australian Centre for International Agricultural Research (ACIAR), addressed the meeting and outlined the highlights of Australia's past year in the Chair.
2. Australia noted that 2021 had been a year of on-going disruption, but despite the circumstances it had still been a productive year for the GRA. Cuba became the newest GRA member, and the Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA) and the Sustainable Agriculture Initiative (SAI) Platform joined the GRA as Partner organisations. COP26 was a noticeable event during the year. A high profile GRA event was hosted at COP26 and the GRA was involved as an official partner / supporter of new global initiatives launched at this time (AIM4C, ClimateShot, Glasgow Breakthroughs). Existing research efforts are being recognised.
3. At the 2021 Council meeting, the GRA adopted a new Strategic Plan. Two new working groups, related to (i) innovation and (ii) conducting a research stocktake, have been established and will report back during this meeting.
4. Australia had a number of goals for its year as Chair and has worked towards achieving these.
 - Despite travel restrictions, there has been more engagement with Pacific Island countries and Fiji inventory development has been supported.
 - GRA events have been promoted widely across the Australian government leading to increased awareness and links built with ACIAR.
 - Synergies and co-benefits between mitigation and adaptation have been a focus and were the topic of the COP26 GRA event.
 - Australia is supporting the MAC-B pilot project in Bangladesh and a flagship project proposal has been developed to support and extend this work.
5. Professor Campbell thanked the Special Representative and the Secretariat for their on-going support. He indicated that Australia is looking forward to staying involved and supporting Chile as they take the Chair for 2022.

INTRODUCTION FROM CHILE

6. Maria Emilia Undurraga, Minister of Agriculture (Chile) welcomed attendees. She noted that Chile updated its nationally determined contributions (NDC) in 2020 with the aim of reaching carbon neutrality by 2050, with emissions peaking in 2030. The government is developing a climate change strategy. Agriculture is 11% of current emissions in Chile and there is an opportunity to both reduce emissions and enhance food security. Chile is looking forward to working together and fostering collaboration to reduce agricultural GHGs.
7. Pedro Bustos, National Director of Instituto de Investigaciones Agropecuarias (INIA), noted that Chile has been involved in the GRA since 2010, at a scientist level, with flagship initiatives and with students as part of the CLIFF-GRADS programme. Even with the Covid19 restrictions, the collaborations have continued. The GRA provides an excellent opportunity to exchange knowledge and work together to reduce GHG emissions and increase agricultural productivity.

IDENTIFICATION OF THE NEW VICE-CHAIR

8. Prior to the meeting, the Secretariat invited countries to express their interest in being the next Vice-Chair. Spain generously offered to take on the role. No objections were received to the proposal.

9. Esther Esteban from INIA-CSIC noted that Spain is happy to support Chile as the two countries share many of the same goals. Spain is keen to take up the Chair in 2023. Spain's most recent GHG inventory showed an emissions reduction of 12% in the past year, with a total reduction of 5% versus 1990 levels. Agriculture accounts for 14.1% of GHG emissions in Spain. However, it is the only sector to have shown increased emissions in the past year. More science is urgently needed to increase agricultural sustainability in Spain. As the new Vice-Chair, Spain is looking forward to working with Chile and the GRA and to contribute to important achievements for everyone.

10. Priority areas for advancing the GRA agenda in the next year are (i) exploring options for targeted collaborations with specific countries, (ii) scholarship opportunities, (iii) mitigation implementation, and (iv) new research partners.

PRESENTATION FROM THE GRA SPECIAL REPRESENTATIVE

11. Hayden Montgomery, GRA Special Representative, opened by acknowledging the role of Australia over the past year and noting that the GRA can be proud of the work done during 2021, despite the Covid19 disruptions. He welcomed Chile and Spain to their new roles.

12. Key developments in the past year include:

- New Member: Cuba joined in June 2021
- New Partners: Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA), Sustainable Agriculture Initiative (SAI) Platform
- Potential new Partner: Environmental Defense Fund (EDF). They are keen to work with the GRA.
 - Proposal that members formally invite them to join.
- Extended GRA Secretariat new staff additions: Segá Ndao (Senegal), Sebastian Ganderats, (Chile) and Heather Went (New Zealand)
- CLIFF-GRADS: The programme will continue in partnership with CGIAR (MITIGATE+), with financial resources secured for 2022–2024. Round 3 and 4 students are beginning to move again. The Round 5 call will open during 2022. A webinar series is currently underway, the IPCC scholarship alumni are also included in this. Special thanks to CCAFS for their support and contributions to the programme.
 - Question about how many R3 and R4 students have managed to start / complete their projects.
 - Status (March 2022):

Status of Awardee	Round 3 (# of Awardees)	Round 4 (# of Awardees)
Completed	8	9
Close to completion / have travelled / working remotely	3	5
Able to travel / have plans to	6	17
Not able to travel / other issues	12	16
TBC	2	5

- RUFORUM: A joint conference series was hosted in October 2021. 21 Masters students from the first Graduate Research Grants on measurement and management of GHG emissions and removals in pastoral and agro-pastoral ruminant livestock farming systems are progressing well with field work. Planning to open a second Graduate Research Grant during 2022. The aim of this is to support priorities of GRA Research Groups and Networks, Flagships, etc.
- EJP Soil External call: Noting that the GRA has no funds of its own, the GRA received support from members to allow it to act as a funder in this call. The GRA provided funding to 4 projects (of 11 in total), supporting participation of 13 research teams from developing countries. An international call is being developed which will open in April 2022.
- ERANET Co-fund Joint Call on Circularity: As above, the GRA was able to act as a funder for 4 projects (of 9 in total), supporting participation of 9 research teams from developing countries. Currently exploring possibility of setting up a GRA Flagship Project working across all 9 projects and connecting to activities of the GRA Circular Foods Systems (CFS) Network.
- Pathways to Dairy Net Zero: GRA is acting as a knowledge partner to this initiative and, working with FAO, have developed a 2-year work programme. The objective is to develop a new dairy system classification which will be embedded in the GLEAM model, to assess dairy mitigation strategies and determine what is plausible for dairy sector emission mitigation through to 2050.
- Agricultural Innovation Mission for Climate (AIM4C): GRA has joined as a Knowledge Partner and, given the alignment of existing GRA activities with the goals of AIM4C, a number of GRA research activities are already recognized as Innovation Sprints. This will potentially provide another opportunity to leverage funding for GRA work.
 - There was a Ministers Meeting prior to the Council Meeting. The Minister from Chile was involved and the GRA was discussed. Hoping for opportunities to arise from this during the year.
- GRA at COP26: GRA recognized as priority initiative as part of the Global Action Agenda for Innovation in Agriculture. GRA contributing to the development of the Glasgow Breakthrough on Agriculture. GRA side-event, hosted by Australia, “Contemplating the Co-Benefits: An exploration of their evidence-base to accelerate climate action.”
- GRA at GFFA: [Global Ministerial Communiqué](#) recognized GRA as a priority initiative, because of the long-standing work of GRA and quality of research. Helpful positioning for GRA in the global landscape.
- Global Methane Pledge: Have been contacted by the Global Methane Pledge seeking our interest in being a ‘supporter’. A supporter is “any organization or institution who supports the GMP goal and who can assist in achieving the target through technical assistance, financial support, or other momentum-building actions”. It does not commit GRA to any specific responsibilities.
 - Proposal that GRA Special Representative and Secretariat to liaise with GMP Secretariat to become a supporter and explore areas of interest for GRA.
 - Supported by UK, Uruguay and Australia.

REPORT FROM INNOVATION WORKING GROUP

13. Luke Spadavecchia (DEFRA), UK, shared the thinking to date from the Innovation Working Group.

14. The world needs to halve emissions over the next decade and reach net zero carbon emissions by the middle of the century if we are to limit global temperature rises to 1.5 degrees. The scale and pace of change will require significant innovation across the global economy. COP26

highlighted the critical value of science and innovation in fighting the climate crisis. Main focus of GRA work is around the types of agriculture.

15. The main focus of the GRA work has been based on types of agriculture (livestock, croplands, paddy rice). A new working group to bring countries together on a voluntary basis to share their experiences and insights on agricultural innovation is being proposed. The overall aim is to develop a clearer picture of the role of innovation in enabling agricultural climate change mitigation and adaptation, with the following objectives:

- **Understanding regional needs**, perceptions, and priorities for agricultural innovation to enable agricultural decarbonisation.
- **Mapping developments in innovative technologies and practices**, by building a repository of evidence that underpins them
- **Showcasing the state of the art** by developing case studies of successful innovations in a range of agricultural settings through concrete examples, including the stories of how the innovation came about, and the benefits experienced by farmers.

16. Envisaged outcomes:

- Encouraging researchers to develop game-changing solutions that are relevant to their national circumstances, building on insights from other territories.
- Identifying potential new avenues of research for the research groups, including the role of disruptive technologies, or the translation of innovations from other sectors.
- Exploring and understanding the potential barriers impacting on development and uptake of innovation

17. A draft concept note has been developed that can be shared following the meeting for written feedback. Question to members, is this suitable and relevant to the GRA?

18. Noted that the proposed group is intended to be complementary to existing groups, such as the UNFCCC CTCN, rather than a duplication of efforts. GRA is a recognised brand and has a role to play in the innovation space. This could be related to signposting information that already exists. From a UK perspective, they are aware of innovations. However, outside of the academic literature, there is a lack of information about how effective they are in real agricultural settings. How does the expectation of the technology live up to the experience on the ground? Additionally, CTCN acts as a matchmaker that links up countries with possible service providers, and agriculture isn't always well resourced in this space. There are opportunities for the GRA to align with the CTCN to provide an improved service.

REPORT FROM RESEARCH STOCKTAKE WORKING GROUP

19. Nina Grassnick (Thünen Institute), Germany and GRA Secretariat, provided an update from the Research Stocktake working group.

20. Current members of the working group are: Australia, Bangladesh, Canada, Germany, New Zealand, Turkey and Research Group Co-chairs.

21. This activity was considered as one of the priority actions under the GRA Operational Plan 2021-2025 contributing to the Key Strategy "Foster Outreach, Knowledge Sharing and Information Exchange". The group met in September 2021 to define the objectives and scope of the Research and Capability Stocktake.

22. The aims of the work are:

- To measure progress and impact of GRA action after 10 years
- To understand the gaps and future capability needs of the GRA

- To highlight the progress and achievements of the GRA community over the past 10-years to international researchers and policy-makers
- To develop communications suitable to inform existing members and a range of other end users
- To assess current capabilities and needs of GRA members and partners

23. To achieve these aims, the working group plans to carry out, firstly, a review of GRA publications and meeting reports identifying, for example, the development of GRA research networks over time and main outcomes of GRA work such as flagship projects and publications, etc. Secondly, the working group plans to survey GRA members or stakeholder interviews to complement the document analysis.

24. The first results of the document analysis were presented. These can be found in the 'Draft actor analysis' report that was sent out prior to the meeting.

- Global participations: high participation in LRG (relevancy to most countries, length of standing of RG), good engagement in CRG by most countries, good engagement in IRG given its establishment in 2017. African countries have more recently joined, so interpretation of results should be done with caution.
- Multipliers: where actors are attending multiple groups or network meetings, much overlap with CRG and IRG, which makes sense given many CRG activities fell into the IRG branch when it was established in 2017. Many key actors in GRA, Chairs and Co-leads of RG's and Research Networks attending multiple meetings and many consistently attending since the beginning of GRA.

25. The work plan for the rest of year was presented. The aim is to have communication materials ready by September, suitable for sharing at international events such as COP27.

26. Members should contact Nina if they would like to join the working group, or have any feedback on the draft actor analysis document that was circulated.

- The Netherlands indicated that they were keen to join the working group.

REVIEW OF ENHANCED SECRETARIAT & SPECIAL REPRESENTATIVE ARRANGEMENTS

27. The 'Terms of Reference (ToR) for Enhanced Secretariat and Special Representative Position' were circulated prior to the meeting. They need to be reviewed every 3 years and the last time was in 2019.

28. The work of the Special Representative, and the energy that Hayden brings to the role, which is reflected in the growing number of member countries and partnerships was commended by the UK, Australia, Ireland, the USA, the Netherlands, Samoa, China, Spain, Brazil and Co-Chairs of the Livestock and Croplands Research Groups.

29. The extended Secretariat, and adding staff across the world, was also seen to add significant value to the GRA.

30. New Zealand stated that it is happy to continue to support the Special Representative and the enhanced Secretariat.

31. It was agreed that the Council support the ToR for the next three years.

MEMBER COUNTRY ANNOUNCEMENTS

Ireland

32. Karl Walsh, Head of Research in DAFM, provided the update.
33. Ireland have introduced a new climate regulatory system which includes a framework for meeting what are now legally binding targets of net-zero emissions no later than 2050, and a 51% reduction in emissions by the end of this decade. The agricultural sector must reduce emissions by 22-30% by 2030. Sectoral emission ceilings will also be published later this year.
34. Ireland also published a new ten-year Strategy for its agri-food sector, Food Vision 2030. This specifically calls out the need for continued research collaboration within the GRA, in areas such as reducing biogenic methane from pastoral systems at scale, animal breeding for reduced emissions, and soil carbon sequestration.
35. As funding partners, Ireland and the GRA have recently collaborated on a number of initiatives including the European Research Area Network Joint Action on Circularity in mixed crop and livestock farming systems, with an emphasis on greenhouse gas mitigation, and the European Joint Programme on Agricultural Soil Management.
36. Teagasc Ireland are conducting research with the New Zealand PGGRC on circular approaches in grassland system management for low emission pastures among other pastoral based methane emission research. Ireland has also joined the AIM4C initiative.

New Zealand

37. Philip Houlding, Director International Policy, MPI provided the update
38. Like Ireland, New Zealand also has a legally binding target of a 10% reduction of methane emissions by 2030, and by 24 to 47% by 2050.
39. New Zealand has an enhanced focus in research and investment efforts in agriculture and are participating in the Global Dairy Platform Initiative, the Global Methane Pledge and AIM4C.
40. Via the GRA networks, New Zealand are exploring regenerative and circular practices as well as low emission breeds. MPI recently signed a MOA with the regional fund FONTAGRO, and they are working together to fund five projects in 2021 and 2022. New Zealand provides ongoing support to GRA Flagship scholarship programmes including CLIFF-GRADS and RUFORUM. Although Covid19 has affected the stage of completion for many students, both programmes have hosted very successful virtual collaboration and webinar series with high engagement from the students and wider networks.
41. New Zealand has an Inventory Capability Building Programme to improve agricultural greenhouse gas inventories and support development of accurate livestock emission factors.
42. New Zealand also supported the first of the Indigenous-led workshops aimed at building emerging climate change leadership and will continue to support indigenous-to-indigenous engagement.

Germany

43. Wolfgang Zornbach, Federal Ministry of Food and Agriculture, (BMEL) provided the update.
44. Germany will continue to support the GRA Secretariat via resourcing Nina Grassnick and the Farm to Regional Scale Integration Network (FRS) of the IRG. Germany is also acting as the FRS Flagship Project champion and support the Nitrogen Fertiliser Flagship.

45. Germany has a legally binding target for agriculture to reduce emissions from 70 mio t CO₂-eq in 2020 to 56 mio t CO₂-eq in 2030.
46. Germany has a new Green agriculture Minister for whom climate change is a top priority, and has a €50 million investment programme on climate related issues.
47. The National Agriculture Soil Inventory Team and colleagues are developing the second National Soil Inventory, data will continue to be collected as part of this effort through to 2028 and the work includes demonstration farms to determine and profile soil carbon sequestration potential.

Canada

48. Pascal Michel, Director General Science and Technology Branch AAFC, provided the update.
49. Canada will continue to support the Co-Chair role of the IRG and remain involved in many of the Networks of the GRA.
50. Canada is focused on science and innovation development as key to supporting the agriculture sector to remain productive while mitigating agriculture emissions and has committed \$4 billion to establish a Natural Climate Solutions Fund.
51. The fund has three focus areas, restoration of degraded systems, land management practices and restoring ecosystems. Efforts under this programme all contribute to various environmental co-benefits and reducing GHG emissions. As part of the fund, Canada will expand the scope of AAFC's Living Laboratories Initiative to develop a living lab network across the country. The living labs will bring together producers, scientists and other stakeholders to co-develop, test, and implement Beneficial Management Practices that are specifically targeted towards removing carbon from the atmosphere and storing it in agricultural soils, as well as reducing GHG emissions from the sector. The second annual living lab workshop will be hosted in 2022 with an international panel of speakers and is open to international participation.
52. Canada participated in the AIM4C Agricultural Minister's Meeting and supported the GRA in other collaborative fora including the G20 and will participate in COP27 this year.

The Netherlands

53. Sjoerd Croque (Ministry of Agriculture, Nature and Food Quality, Netherlands) provided a verbal update to complement the written update they have already sent to the GRA Secretariat.
54. The Netherlands highlighted their contribution to the coordination of the Food Systems Summit organized with FAO and COP26 coordination activities with many other countries.

China

55. Yue Li (Institute of Environmental and Sustainable Development in Agriculture (IEDA) Chinese Academy of Agriculture Sciences (CAAS)) provided the update.
56. In 2021 China established a Policy System of 'One Class Policies' with working groups for the anticipated peak of CO₂ emissions, and for efforts to reaching carbon neutrality. The carbon neutrality working group have developed an action plan for achieving carbon neutrality by 2060.
57. The Ministry of Agriculture have also formed an action plan, with ten agricultural actions proposed to mitigate:
 - CH₄ from rice paddies,
 - N₂O from cropland,

- GHG's from the livestock sector,
58. and to enhance removals through:
- soil carbon sequestration,
 - plantation manure,
 - anaerobic digestion for manure systems.
59. Further actions as part of the Ministry's action plan include supporting research and development efforts for agricultural GHG's and improving research methodologies and data collection to improve the overall state of information around manure treatment and utilization and subsequent GHG reductions.
60. The initiative is supported by CCAC and several international collaborators.

Brazil

61. Gustavo Mozzer (EMBRAPA) provided the update.
62. Brazil has a big focus on the interlinkages between mitigation and adaptation in line with GRA's activities and also given the country's circumstances, on best practices for tropical agriculture.
63. Brazil is enhancing their NDC and support the AIM4C and Global Methane Pledge initiatives.
64. The ABC Policy framework is entering a new phase after ten years, called ABC+ with focus on particularities and challenges faced in tropical agricultural systems within Brazil, but also anticipate this work will be beneficial for many countries facing similar challenges especially with the impending implementation of the Paris ETF. Brazil is committed to helping other national inventories in incorporating new emission factors in their national inventories as the main tool for informing emission related agricultural policies.
65. Brazil also have continued engagement of EMBRAPA which has developed significant long-term research information, and encourage engagement with this via GRA to foster and enhance collaboration.

USA

66. Marlen Eve, United States Department of Agriculture (USDA ARS), provided the update.
67. The USA continue to develop climate smart initiatives and provide the sector co-chair for the AIM4C.
68. The USA would like to acknowledge the many years of service of Mark Liebig as Co-Chair of the CRG Network, and to welcome the new Co-Chair Dr. Hero Gollany. The USA will continue to support this role.

RESEARCH GROUP PRESENTATIONS

Croplands Research Group (CRG)

69. Ladislau Martin-Neto of Brazil provided the CRG report.
70. The annual CRG meeting was well attended by 40 participants from 14 countries. During the meeting, the Group conducted exercises on mitigation co-benefits of the five networks, to better profile and inform future activities. The exercises were focused on outcomes arising from GHG mitigation practices, and motivations for implementing mitigation policies.

71. The Conservation Agriculture Network prepared a special section in the Soil Science Association Journal with 10 publications and published a news article in the Croplands Society of America on a meta-analysis conducted with 121 field studies, 10 countries and 6 continents.
72. The Group's Capability Building activities included a webinar series in 2021 with sessions on Full Inversion Tillage in May, Soil Carbon Sequestration in March and Agroecology in December, as well as quarterly newsletters.
73. The CRG support the Nitrogen Fertiliser Flagship project and are happy to provide guidance to stakeholders on CRG related themes in the form of academic publications, resources and communication for policy actors.
74. The CRG request the Council to continue to work to identify synergies between the GRA Research Groups and to provide allocation for the co-chairs of the Groups.

Livestock Research Group (LRG)

75. Richard Dewhurst of the UK provided the LRG report.
76. In October 2021, the 13th annual meeting of the LRG was attended by 92 participants from 43 member countries and 9 partner organisations. During the meeting there was extensive discussion about research opportunities, and they identified the Flagship Project to build on HUNGATE work, proposed by Sharon Huws of Queens University. A key finding of meeting discussions was the urgent need to translate research to practice and researchers within the LRG Networks are considering behavioural change. Some discussion also focused on investment opportunities for LMIC members such as ERA-NET.
77. The Animal Selection, Genetics and Genomics Network hosted a 3-hour workshop in June 2021 on rumen proxies which led to a review on methane proxies and there is work to develop a new collaborative project in this area.
78. The Animal Health Network have new leadership. Plans to increase linkages of work on GHG emissions intensity implications of animal health with other global animal health networks.
79. The Rumen Microbial Genomics Network has a number of funded collaborative projects including RumenPredict, MASTER and a new EU project called HoloRuminant. These projects provide a strong core to the network.
80. The Food and Nutrition Network have new leadership, David Yanez Ruiz of CSIC in Spain, and have proposed a flagship project to better profile major advances on growing feed and collecting data on subsequent dietary effects.
81. The Manure Management Network led DATAMAN and MELS, which is essentially an extension of DATAMAN. Both have made major advances through connecting with other Networks and informing policy decisions.
82. LRG ambitions include supporting new leadership, new ideas and supporting getting core of projects underway.
83. Capability Building activities include providing inventory and mitigation support, collaborating with the Global Dairy Platform and previous work with CCAFS to develop a technical manual on the effects of methane inhibitors. A major aspect of these efforts is scanning for potential areas of development under LRG.

Integrative Research Group (IRG)

84. Pamela Joose of AAFC and Jean Francois Soussana of INRA provided the IRG report.
85. Lee Nelson is being replaced by Matthew Bartlett of DAFF (Department of Agriculture, Fisheries and Forestry) as Co-Chair of IRG.
86. The new Farm to Regional Scale Integration Network of the IRG hosted their kick-off meeting in June 2021, attended by 48 participants from 25 countries. The FRS have since hosted three special topic webinars and developed a Flagship Proposal with further plans to produce first results by June and provide the first publication under the Flagship in late 2022.
87. The new Circular Food Systems Network also hosted their kick-off meeting in June 2021 which was attended by 57 participants from 36 countries. A result of this meeting was a number of case studies have been identified each with global participation and publications to come in 2022.
88. The Soil Carbon Sequestration Network, supported by and aligned with CIRCASA, have a project focused on Operationalizing the International Research consortium on Soil Carbon. The SCS have worked on accelerating socio-technical transitions for soil carbon, and this work led to the SCARF (Soil CARbon Farming network) initiative being developed, spanning multiple European countries and international collaborators.
89. The Inventories and Nationally Determined Contributions Network hosted a Research Collaboration meeting in June 2021, with 60 participants from Africa, Europe, North American, ASEAN and LAC countries and updates from Network research partners and colleagues at the IPCC TSU TFI. In January 2022, the Network hosted a meeting specifically for national level Agriculture Inventory Compilers, with 45 participants from 35 countries along with a pre-meeting survey to establish the current state of inventory capability and research needs. Two focus areas for the INDC Network emerged from this meeting, a need for briefer summaries of agricultural emission calculation methods specific to national level inventories, and some form of guidance on best practices to capture and account agriculture sector emission mitigations in national inventories.

Paddy Rice Research Group (PRRG)

90. Yasukazu Hosen of Japan provided the PRRG report.
91. In April and May 2021, the PRRG co-hosted two webinars with IRRI on new tools for mitigations in rice systems.
92. The MIRSA-3 project 2018 – 2023 with participation from Japan, Philippines, Indonesia, Viet Nam and IRRI, is summarizing results of the project's research efforts and expect several publications to be ready in 2022. Under development of the PRRG are a successor project to MIRSA-3, supported by MARDI-NARD which will develop local emission factors in Malaysia.
93. Two other projects under the PRRG are:
 - More rice with less emissions and less water consumption, and
 - More production and sustainable rice in Latin America.
94. The latter, with participation from Chile, Panama and Argentina, and support from CCAFS and FONTAGRO has contributed information on GHG emissions in paddy rice and the effect of mitigation actions to an INIA book (No. 40) published in 2021.
95. A sub-group meeting for the Americas is planned for June 2022.

Key messages from the Research Group Co-Chairs

96. Tri-chairing is working well, with less load on a single chair and facilitating greater reach across regions.
97. Strongly support the Flagship project concept although not that they need to be adequately resourced to be able to undertake the proposed work.
98. The Chairs would like to acknowledge the key role of the Special Representative, particularly in coordinating and mobilizing resources, even leading projects.

Discussion

99. Brazil noted that countries not being able to afford to support a leadership role should still be able to participate, and contribute to Flagship Projects, agreed and is one of the core GRA goals noted by the Chairs, discussed in time contributions and support from colleagues and managers is most important.
100. The Special Representative noted that there are ways to address this, particularly with CLIFF-GRADS to support them to get involved in the Research Groups and Networks and really good opportunity for them to get more integrated into the networks.
101. Bangladesh, Dr Nathu Ram Sarker, noting their limitations and focus on country EF's. Richard Dewhurst noted he would connect Bangladesh with relevant contacts in FNN and AHN, IRG expertise relevant too, there may be more.
102. Bangladesh and Brazil exchange on biological N fixation and crop management – potential collaboration? Jonathan Casey from CABI also was interested to get in touch with Brazil.

FLAGSHIP PROJECT PRESENTATIONS

GHG Mitigation in Cattle Farming, Presented by Claus Deblitz

- Timeline: 3-5 years, starting in March 2022.
- Objective: to investigate the feasibility and cost-effectiveness of GHG mitigation strategies at farm-level in the beef cattle and dairy sector.
- Outcomes: to identify and analyse the most cost-effective management options with low emission outcomes, to provide evidence-based policy recommendations on GHG mitigation strategies at the farm level, and to build a database of information over time.
- Participation: Support by all continents.
- Expertise needed: specifically in farm level GHG accounting and expertise on farm economic modelling.
- Opportunities for involvement: there will be opportunities for CLIFF-GRADS research stays.
- Council Champions: Argentina, Australia, Bangladesh, Canada, Germany, Peru, South Africa

Remote Sensing Grasslands, Presented by Hayden Montgomery

- Timeline: 4 years, starting in March 2022.

- Objective: to use space born remote sensing to identify and classify types of grassland systems, specifically to estimate the quantity and quality of parameters such as crude protein content, nitrogen content and energy content.
- Participation: the project is aligned and has benefited and strengthened a number of activities already formed with participation from a number of organisations, and industries with a strong interest in sustainable production.
- Fund: USD \$1.3 million already committed
- Opportunities for involvement: Ample. Some partnerships identified via CLIFF-GRADS.
- Council Champions: Argentina, Canada, Costa Rica, FONTAGRO, Ireland, New Zealand, Uruguay

Nitrogen Fertiliser Emissions, presented by Marta Alfaro

- Timeline: 4 years, starting in March 2022.
- Objective: to develop Tier 2 emission factors for using across different agricultural systems including direct and indirect emissions and NH₃ emissions. There is limited existing guidance in latest IPCC Refinement to the earlier Guidelines for national inventory compilation and this project would hope to address some questions arising from the lack of guidance.
- Plan: to mix field measurements and a statistical approach.
- Participation: research and private sector including the international fertilizer association.
- Fund: \$400k USD, particularly for new field research.
- Opportunities for involvement: if any data is available or there are national funding initiatives in alignment, please contact champion.
- Expertise needed: data modelling.
- Council Champions: Canada, Chile, Costa Rica, FONTAGRO, Ireland, New Zealand, Spain

Hungate Collection 2, presented by Sharon Huws

- Timeline: 2 years initially, starting in June 2022.
- Objective: this project will build and expand the Hungate body of research and provide major improvements in the understanding of how to utilize the rumen genome for use in reducing emissions through probiotics and as direct fed dietary additions. New technology that was not previously available make it now possible to identify several missing cultures in what has already been sequenced.
- Participation: several research hubs will be set up so that countries everywhere can send their samples to their nearest hub, which will be deposited into culture collections for scientific research.
- Opportunities for involvement: there will be opportunities for multiple CLIFF-GRADS research stays.
- Council Champions: Canada, Colombia, Ireland, New Zealand, UK

Feed Additives, presented by David Yanez Ruiz

- Timeline: 2-year project, starting in September 2022

- Objective: despite significant and increasing interest in reducing methane emissions globally, there are still very few products that reduce agricultural CH₄ emissions able to be sold due to multiple constraints. This project seeks to increase understanding of the efficacy, mode of action of feed additives, and to aid on feed additive evaluation. The first phase is to provide guidance on feed additive development, and the second phase is to facilitate the registration process, and accounting of new products at the national level. This will involve standardization of expected efforts, improved capabilities to test additives, and increasing the applicability of most promising additives.
- Participation: The Feed and Nutrition Network are the foundation with significant networks already, the flagship also links closely with the RMG proposed flagship, some projects of FONTAGRO, ERA-NET and Horizon 2022.
- Opportunities for involvement: the flagship are seeking funding for a post-doctoral researcher to coordinate data collection across the different agencies.
- Expertise needed: experts in fields of feed additive research.
- Council Champions: Canada, Ireland, Netherlands, New Zealand, Spain, US, Zimbabwe

MAC-B Bangladesh, presented by Cynthia Rosenzweig

- Timeline: 3-year project from 2022 to 2025.
- Objective: generate new knowledge that will be able to contribute to NDC development.
- Participation: AgMIP and Bangladesh. CIMMYT. Oregon State, Columbia and New York Universities
- Funds: 250k AUD already committed by ACIAR.
- Opportunities for Involvement: The IRG is the foundation, with engagement from all research groups welcomed.
- Council Champions: Australia, Chile, Indonesia, US

Support for Proposed Flagship Projects:

103. First three passed by Council, as five Council Champions had been identified and confirmed ahead of the meeting.
104. Members supporting the Feed additives proposal: Zimbabwe, UK, USA, New Zealand, Spain, Ireland.
105. Members supporting the Hungate collection 2 proposal: Canada, Colombia, Ireland, New Zealand, UK
106. Request to Council to identify further Champions for the MAC-B proposal.

PARTNER PRESENTATIONS

SAI Platform, presented by Rob Meyers

107. The Sustainable Agriculture Initiative (SAI) Platform was initiated, by Nestle, Unilever and a number of other companies. Members today are over 150 agents from across the food system.

Member interest is to work competitively, and to develop practical implementation tools, that are crop specific and topic specific. Practical implementation is place based and purpose is to demonstrate best and regenerative agricultural practices. Challenges still exist for testing and implementing new agriculture innovations.

108. Special Representative noted it is of great benefit to the CLIFF-GRADS programme to have opportunities to intern with companies to complement their PhD research.

MITIGATE+, presented by Lou Verchot, CGIAR

109. Purpose of MITIGATE+ workstreams is to improve GHG budgets and co-benefits in agri-food systems. They are taking a multi-dimensional research approach.

110. Objective: to improve the evidence base and improve rigor and certification of data, and to increase stakeholder capability. The number of NDC's with agricultural targets are not proportionate to the impact of greenhouse gas emissions generated because of food production currently. This work will underpin and promote better and more measurable agricultural NDC commitments. What they are considering does not fall within traditional inventory frameworks, they would be developing new frameworks for accounting.

111. The five work programmes are:

- Strategic development,
- Addressing evidence and data gaps,
- Developing living labs,
- Scaling, and
- Engagement.

112. Participation initially in 2022 is with China, Viet Nam, Kenya, and Colombia. In 2023 this will expand to Bangladesh, Peru and Ethiopia.

113. Overall the project will reduce 1.1 Gt CO₂eq agricultural emissions by 2030, or in other words, a 6.2% reduction in projected global food system emissions.

WORKSHOP: MITIGATION IN SMALL HOLDERS

FONTAGRO, presented by Eugenia Saini

114. [FONTAGRO](#) is a unique cooperation mechanism for co-financing science, technology, and innovation for the agrifood sector in Latin America and the Caribbean including 15 member countries.

115. Since 2009 FONTAGRO has successfully collaborated with GRA on several projects, e.g.:

- 2010: [Climate Change and Livestock: Quantification of Methane and Nitrous Oxide Emissions of Grazing Cattle, and Mitigation Options](#)
- 2014: [Developing competitive livestock production systems with low greenhouse gas emissions in Central America](#)
- 2014: [Improving animal production systems, with a focus on dairy farming, in a climate change context in the Andean Region](#)
- 2014: [Livestock and climate change: applied research and knowledge](#)
- 2017: [Latin American and Caribbean Platform for Sustainable Intensification of Livestock Farming](#)

- 2018: [Carbon sequestration opportunities in Latin American and Caribbean soils](#)
- 2019: [Innovation for pasture management](#)
- 2020: [Organic-carbon sequestration in Latin American and Caribbean soils: opportunity identification and quantification of economic and environmental impact](#)
- 2021: [Satellite monitoring of quantity and quality of available biomass in pastoral livestock systems](#)

116. FONTAGRO has invested funding of around \$7.6 Mio. USD Dollars to date through its collaboration with the GRA and received training and capability building of its researchers. The collaboration also allowed to build innovation platforms to invest in research and innovation and working together with a high number of farmers.

117. In 2021, a high-level meeting of seven agricultural ministers was organized to discuss the future of agriculture in the region. Recording here: <https://digital.fontagro.org/en/webinar2021/>

118. FONTAGRO and GRA have opened a call for project proposals on “Innovaciones para mejorar la sostenibilidad y resiliencia de las fincas ante el impacto del cambio climático en América Latina y el Caribe” which is closing on 8th April 2022: <https://www.fontagro.org/type/convocatoria-2022/>

PROCISUR, presented by Cecilia Gianoni

119. [PROCISUR](#) is a cooperative programme for the development of agri-food and agro-industrial technology in the Southern Cone. It was created in 1982 as an initiative of the National Agricultural Research Institutes of Argentina, Brazil, Chile, Paraguay and Uruguay, and the Inter-American Institute for Cooperation on Agriculture (IICA).

120. The current Medium-Term Plan 2019-2022 establishes the strategic guidelines for PROCISUR to address the main challenges for the next four years. The main objective is to contribute, through cooperation, to the construction of a regional agri-food and agro-industrial innovation system, focused on the generation of technological, institutional and knowledge innovations, in articulation with other regional and global networks, in order to meet the challenges of society. The three strategic pillars are: (1) Science, Technology and Innovation, (2) Human capital and knowledge management and (3) Inputs for Public Policy. The six strategic lines are: (1) Sustainable intensification, (2) Climate change and risk management, (3) Family farming, (4) Institutional development, (5) Plant and animal health and (6) Natural resources.

121. PROCISUR is a strong network for R&D in the Southern Cone with over 5000 researchers (most of them are postgraduates) and over 500 research centers providing development and technology transfer (laboratories, extension officers, experimental stations). It has 40 collaboration projects with 125 strategic partners from 25 countries.

122. Main benefits of cooperation are (1) capacity building and strong networks, (2) leverage institutional resources and speed up R&D processes and (3) install strategic issues for regional agriculture.

123. The focus of PROCISUR regarding collaborative research on climate change and smallholders was initially on impact measurement and adaptation strategies. 88% of farmers in the region are smallholders and therefore key partners for PROCISUR projects.

124. In the last years, PROCISUR started to work on mitigation of greenhouse gases, e.g. (1) Carbon footprint, environment and agriculture in the South Cone, (2) Climate Change and livestock quantification and mitigation options for methane and nitrous oxide emissions of bovine under grazing conditions and (3) Use of forage legumes in livestock systems.

125. The Southern Cone is strongly affected by the impacts of climate change. More regional and collaborative research is needed to (1) generate, document and display information and

measurement at the local level and technologies of management practices that value the sustainability of the production systems, e.g., a task force on mitigation of GHG is being set up in 2022, and (2) support sustainable practices for smallholders through e.g., public policies and access to financial resources.

PLACA, presented by Cecilia Jones

126. The Latin American and Caribbean (LAC) platform for Climate Action in Agriculture (PLACA) was initiated by Chile at the COP 25. Its general objective is to promote collaboration among LAC countries, and with regional and international partnerships and institutions, for the implementation of regional and national climate strategies in the agricultural sector, considering the social, environmental and economic dimensions.

127. PLACA has 12 member countries and its current president is Uruguay with Costa Rica being its co-president. Associate organizations are e.g. CGIAR and World Bank Group.

128. PLACA has four thematic working groups: (1) Adaptation and Mitigation, (2) Public Policies, (3) Transfer of Knowledge and Good Practices and (4) Research, Development and Innovations.

129. Project example: “Climate-smart livestock production and land restoration in the Uruguayan rangelands” funded by GEF. The project includes 61 livestock family farms in a co-innovation process. Preliminary results show that with climate-smart practices the livestock farmers can increase beef production (kg/ha), net family income (through lower production costs), reduce total GHG emissions/ha and reduce GHG emission intensity. The latter would contribute to achieve Uruguay’s NDC. PLACA sees potential for scaling up these practices to the regional level.

IICA, presented by Hernan Chiriboga

130. The [Inter-American Institute for Cooperation on Agriculture \(IICA\)](#) is the specialized agency for agriculture of the Inter-American System that supports the efforts of Member States to achieve agricultural development and rural well-being.

131. It has 34 Member States in the Americas, Caribbean and Spain. The special office in Spain focusses on agricultural exports to the EU.

132. The five hemispheric programs are:

- Bioeconomy and Production Development
- Territorial Development and Family Farming
- International Trade and Regional Integration
- Climate Change, Natural Resources and Management of Production Risks
- Agricultural Health, Safety and Food Quality

133. Additionally, two cross-cutting issues have been identified as essential components in the work undertaken by all five programs:

- Gender and Youth
- Innovation and Technology

134. First project example: “Sustainable Innovation. Irrigation system with clay pots”, in this project IICA promotes the use of clay pots to produce food with little water use, a low-cost and easy-to-implement ancestral solution. The technology is implemented in Brazil and Paraguay with the use of grey water and seawater. Thereby, the system is helpful when the countries are hit by severe droughts.

135. Second project example: Platform “living soils of the americas” which is led by Dr. Rattan Lal and aims at uniting public and private efforts in the fight against soil degradation. It proposes concrete actions such as direct sowing, agroforestry and incorporation of organic matter to the soils. It aims on raising the awareness of local producers and leaders regarding the importance of soil health and quality. Cooperation partners are e.g. INIA, University of Chile and the Ministry of Agriculture in Chile.

136. Third project example: “System of Rice Intensification”. In Chile, INIA together with IICA are working on climate-smart rice that uses 50% less water through irrigation in intervals according to the weather conditions instead of flooding. The climate-smart rice production does not use herbicides and saves up to 80% on seeds. The system is now implemented as commercial system in Chile in cooperation with the private sector.

Panel discussion:

137. Eugenia Saini, FONTAGRO pointed out the benefits from collaboration especially regarding the innovation platform and multidisciplinary work. This is important to improve the emission coefficients and data management to increase data availability for policy recommendations. She proposes a fora or dialogue in a 2nd meeting where research projects can present their results. The invitation of public and private stakeholders as well as policy makers is important.

138. Veronica Doerr, Australia raised the question of how to justify the research focus on smallholders and not on large-scale farms as these usually contribute most to GHG emissions from agricultural sector.

- Answer by Cecilia Gianoni, PROCISUR: in our region 88% of farmers are family farmers and thereby key actors. Projects should be designed as co-innovation projects.
- Answer by Cecilia Jones, PLACA: in the case of Uruguay the production chain perspective is important, e.g. most cow-calf farms are family farms which have a pull and push effect for the whole beef production in the country. If we focus on family farms, we have the sustainability effect along the whole chain. Furthermore, smallholders need technical assistance and capacity building (not infrastructure).
- Answer by Eugenia Saini, FONTAGRO: working with smallholders is not easy and requires joint work from the public and private sector. There is the need to create an environment for a dialogue between these stakeholders. Cooperation with institutions that are responsible for technology adoption is key, these are different in every country. In the case of LAC countries who are exporters of meat and dairy products, knowledge on changing market requirements (e.g. regarding sustainability) in export destinations are important to transfer to farmers new requirement. We need a holistic and integrative approach and need to create space for dialogue, as GRA is doing.
- Answer by Sjoerd Croqué, Netherlands: Dutch policy perspective on smallholders: 80% of the food consumed in developed countries comes from smallholders → important role regarding poverty reduction and food security. It is not a question of “if” but “how” the GRA can support smallholders to mitigate climate change.
 - Comment by Eugenia Saini, FONTAGRO: Propose to invite representative of multilateral investment initiatives to the next GRA Council Meeting to find funders for this work

139. Comment by Andrew Campbell, Australia: program in northern Australia: traditional farming in savannah farm systems; using traditional knowledge to implement low-intensity fire land practices at landscape level; fires burning in early season → prevent much bigger fires in late dry-season; indigenous people get carbon-credits because they mitigate GHG emissions through “cold fire”; colleagues in DFAT fund similar program in Botswana and Timor-Leste

140. Question by Fahmuddin Agus, Indonesia: (1) The Indonesian government is preparing a cap and trade scheme but might be challenging for smallholders. What do you think about carbon credits and smallholders? (2) In Indonesia, to work with smallholders on climate change the entry-point is usually adaptation and other co-benefits of mitigation and not mitigation. How is it in your case?

- Answer by Cecilia Gianoni, PROCISUR: initially, mitigation was not the focus in the region, it only came to the agenda during the last 5 years. The focus was before on adaptation. Now it includes also animal welfare, natural pastures and integrated agriculture.
- Answer by Cecilia Jones, PLACA: This is much more than a discussion on smallholders only, it is about agriculture in general, we have to think about it as a system. She agreed that adaptation is the entry-point also for the PLACA member states. Agriculture is a complex systems and problems are not easy to solve.
- Answer by Eugenia Saini, FONTAGRO: Climate change does not distinguish between type of farmers, but we have to help farmers to be resilient, train researchers and technicians and work with farmers.

141. Question on manure management from the chat.

- Cecilia Jones, PLACA: In Uruguay there has been work on dairy farms regarding manure management regarding environmental effects, water-quality and GHGs. Work aimed on reducing contamination of rivers caused by dairy farms at the same time had positive side-effects regarding GHG emissions. Policy and actions have to consider all aspects. In the case of Uruguay, there has been a move to make it mandatory to build infrastructure to collect manure on dairy farms.

REVIEW OF THE 2021 OPERATIONAL PLAN ACTIONS

142. The Special Representative provided an update of the progress made regarding the agreed priority actions at the last Council Meeting.

Further Research Collaboration

- Support development and implementation of the proposed International Research Consortium on soil carbon → completed: within the IRG the ORCASA proposal was developed and the project is about to start.
- Flagship proposal MAC-B adaptation and mitigation models → completed.
- Identification of co-benefits from reducing emissions, as a way to prioritise agricultural practices that also contribute to adaptation and other areas (e.g. air quality, water saving, productivity) → work has been started e.g. through the COP 26 side event "[Contemplating the Co-Benefits](#)", but more can be done.
- Establish working group to explore the role of innovation within the GRA (e.g. plant genetics), to advance mitigation objectives, ensuring farmers participation, and report back to the 2022 Council meeting → some progress made, but work should be continued.
- Build a network supporting indigenous scientists/capability across the GRA → first effort made through New Zealand but was hampered by Covid19, work should be continued.
- Launch a Network on GHG in Mediterranean Climate Agriculture → not yet started.

Foster Outreach, Knowledge Sharing and Information Exchange

- Online webinars and training materials made available on the GRA website → research groups created material, ongoing activity.

- Build capability among early career scientists by: supporting existing GRA scholarships and awards, e.g. CLIFF-GRADS, and identifying other existing relevant awards and scholarships offered by members and partners; organization of workshops to enable early career scientists and PhD students to present their work and get feedback from senior scientists; Identify universities that have strong focus on agricultural research (with focus on climate mitigation) in GRA member countries and advertise participation in GRA research networks to PhD students, including CLIFF-GRADS, RUFORUM, and IPCC Scholarship programme alumni → some progress was made, e.g. connected IPCC Scholarship programme with CLIFF-GRADS and Ekaterina Bessonova reviewed existing scholarship programmes to connect with.
 - Request to countries / partners to send information on scholarships to support early career scientist to GRA Secretariat.
- Undertake a research and capability stocktake to track the progress (including case studies) and impact of GRA action after 10 years and develop how best to communicate this to a range of end users referring to current policy questions (e.g. before / during COP) → preparation completed, will be continued.
- Provide coordination support through the GRA Secretariat for GRA webinars to present research results; develop GRA webinar "corporate design" and webinar calendar → Implemented and ongoing activity.
- Encourage Council Members to identify policy questions for Research Groups and Partners to respond to at 2022 Council meeting (internal communication) → no questions received.
- Develop and present Research Group activity summaries (e.g. on co-benefits of climate change mitigation) for presenting at international events, e.g. COP side-events, KJWA and GFFA, with further distribution as appropriate (external communication). Each Research Group to contribute at least one summary in a standardized format → not yet done.

Build Effective Partnerships

- Provide Partners pages on GRA website for relevant information to be included → not yet done.
- Establish a GRA Partners forum to discuss opportunities for collaboration and coordination between GRA Partners → not yet done.

Leverage Financial and Other Resources

- Systematically identify research funding schemes that allow participation of international partners and communicate it back to GRA Council / Secretariat → Not systematically, opportunities have been identified opportunities, e.g. EJP-Soil external call, circularity and mixed cropping livestock systems

DISCUSSION: MEETING DECISIONS AND EXPECTATIONS FOR 2022 – 2023

143. Deborah Knox presented the meeting outcomes of the 3 days council meeting and opened the discussion regarding further decision to be made.

Meeting Outcomes – Day 1

144. Spain confirmed as Vice-Chair, 2022 and Chair, 2023.

145. GRA to become a 'Supporter' of the Global Methane Pledge (GMP). GRA Special Representative and Secretariat to liaise with GMP.

146. Innovation Working Group to continue developing ToR and workplan – consider connecting with AIM4C during 2022.

147. Research Stocktake workplan agreed and work to commence.
148. New Zealand to continue hosting the GRA Special Representative and Secretariat, and additional support from members.

Meeting Outcomes – Day 2

149. Networks continue to need support/encouragement to seek opportunities to involve LMICs (success ERA-GAS call 2021)
150. A need to develop greater links from research to knowledge transfer and policy
151. Seek collaboration with private companies, especially on topics such as soil carbon and circularity. Also, opportunity to get involved with new partners.
152. Develop projects across networks, e.g. through flagship projects
153. Time duration for Co-Chair role and resourcing
154. New GRA Flagship Projects confirmed:
- GHG mitigation in cattle farming
 - Remote Sensing Grasslands
 - Nitrogen Fertiliser Emissions
 - Feed Additives

Meeting Outcomes – Day 3

155. One more Flagship Proposals that were awaiting Council Support got confirmed:
- Hungate Collection 2 with Council Support by UK, New Zealand, Ireland, Canada and Colombia
156. Invite Environmental Defence Fund to be a GRA Partner → confirmed
157. Actions to remain on the Operational Plan 2022 – pending discussion → request to members / partners to signal support on priority actions via email:
- Mediterranean Agriculture Network – who leads?
 - Policy questions from Council to RGs
 - Research Summaries from RGs on co-benefits
 - Partners page on GRA Website
 - Establish partners forum
 - Identify further Council Champions for the MAC-B proposal, confirmed support by Australia, USA, Chile and Indonesia.

CLOSING

158. Marta Alfaro gave a closing statement and highlighted the importance of the flagship projects which provide an adequate framework because they are time-bound and inclusive and allow the creation of new knowledge. She invited partners to contribute to this and other GRA work in cash and in-kind.
159. Marta closed the meeting by expressing her gratitude to the Ministry of Agriculture in Chile, to the GRA Special Representative, the enhanced GRA Secretariat, the GRA Co-chairs and Research Groups, the INIA team, the support and production staff and all attendees.

APPENDIX 1: PARTICIPANTS LIST

Members	
Argentina	Andres Said, Ministry of Agriculture
Australia	Andrew Campbell, ACIAR Julianne Biddle, ACIAR Veronica Doerr, ACIAR
Bangladesh	Nathu Sarker, Bangladesh Livestock Research Institute Ghulam Hussain, Bangladesh Agricultural Research Council
Brazil	Gustavo Mozzer, Embrapa
Canada	Pascal Michel, Agriculture and Agri-Food Canada Bob Turnock, Agriculture and Agri-Food Canada Priyanka Vanaik, Agriculture and Agri-Food Canada
Chile	María Emilia Undurraga, Minister of Agriculture Pedro Bustos, INIA Marta Alfaro, INIA Sebastian Ganderats, INIA Hernan Chiriboga, IICA Micaela Galán, Ministerio Agricultura
China	Hongmin Dong, Institute of Environmental and Sustainable Development in Agriculture (IEDA), CAAS Bin Wang, Chinese Academy of Agriculture Sciences (CAAS) Yue Li, Institute of Environmental and Sustainable Development in Agriculture (IEDA), CAAS Changliang Fu, Ministry of Agriculture and Rural Affairs Xiaobo Qin, Institute of Environmental and Sustainable Development in Agriculture (IEDA), CAAS Yue Wang, Institute of Environmental and Sustainable Development in Agriculture (IEDA), CAAS
Colombia	Jorge Mario Diaz, AGROSAVIA - Colombian Corporation for Agricultural Research
Costa Rica	Karla Mena Soto, Ministry of Agriculture and Livestock Mauricio Chacón Navarro, MAG
Côte d'Ivoire	Abdoulaye Cissé, Université Félix Houphouët-Boigny
Denmark	Bjarne Thomsen, Ministry of Food, Agriculture and Fisheries, Danish Agricultural Agency
Dominican Republic	Jochy José Rafael Rodríguez Alonzo, Instituto Dominicano de Investigaciones Agropecuarias y Forestales (IDIAF)
Ecuador	Raúl Jaramillo, Instituto Nacional de Investigaciones Agropecuarias
Egypt	Shireen Assem, Agricultural Research Center (ARC)
Eswatini	Leslie Mapako, Ministry of Agriculture Zachariah Dlamini, Government
Germany	Wolfgang Zornbach, German Federal Ministry of Food and Agriculture Hannah Dorgeist, German Ministry of Food and Agriculture Claudia Heidecke, Thünen Institute Claus Deblitz, agri benchmark / Thünen Institute Nina Grassnick, Thünen Institute/ GRA Secretariat

Indonesia	Bess Tiesnamurti, Indonesian Centre for Animal Research and Development Dicky Pamungkas, Indonesian Agency for Agricultural Research and Development Fahmuddin Agus, Indonesian Agency for Agricultural Research and Development Mohammad Ikhsan Shiddieqy, Indonesian Agency for Agricultural Research and Development
Ireland	John Harrison, Department of Agriculture, Food and the Marine (DAFM) Karl Walsh, Department of Agriculture, Food and the Marine (DAFM)
Italy	Silvia Baralla, MIPAAF
Japan	Shintaro Kobayashi, Ministry of Agriculture, Forestry and Fisheries
Lithuania	Diana Šalkauskienė, Ministry of Agriculture Vygantas Katkevicius, Ministry of Agriculture
Malawi	Hannah Kasongo, Environmental Affairs Department
Netherlands	Sascha Bollerman, Ministry of Agriculture, Nature and Food Quality Sjoerd Croqué, Ministry of Agriculture, Nature and Food Quality Gerbrand Jung, NL Embassy in Chile
New Zealand	Phil Houlding, Ministry for Primary Industries Trish Ranstead, Ministry for Primary Industries Lulani Siemsen, Ministry for Primary Industries Nilusha Ubeynarayana, Ministry for Primary Industries Sandy Zhang, Ministry for Primary Industries William Aitkenhead, Ministry for Primary Industries Andrea Pickering, NZAGRC Hazelle Tomlin, NZAGRC
Nigeria	Garba Hamidu Sharubutu, Agricultural Research Council of Nigeria
Philippines	Joell Lales, DA-Bureau of Agricultural Research Junel Soriano, DA-Bureau of Agricultural Research
Samoa	David Hunter, Ministry of Agriculture and Fisheries Seuseu Tauati, Scientific Research Organisation of Samoa
Senegal	Alioune Fall, Forum for Agricultural research for Africa (FARA) Mbaye Diop, Institut Sénégalais de Recherches Agricoles (ISRA)
South Africa	Dumisani Mthembu, Department of Science and Innovation Joel Mamabolo, Dept Agriculture and Rural Development Matiga Motsepe, DALRRD
Spain	Esther Esteban Rodrigo, INIA - CSIC Guy Vancanneyt, INIA David R. Yáñez-Ruiz, CSIC
Switzerland	Laura Sommer, Federal Office for Agriculture
Thailand	Sairak Chailanggar, Office of Agricultural Economics, Ministry of Agriculture and Cooperatives
Tunisia	Haikel Hechlef, Ministère De L'agriculture
Turkey	Alican Eren, International Agricultural Research and Training Center Hilal Ar, TAGEM Inci Tekeli, Ministry of Agriculture and Forestry Mesut Yıldırım, International Center for Animal Research and Training Muhammed Ikbal Coskun, International Center for Livestock Research and Training

United Kingdom	Luke Spadavecchia, Defra Rachel Lambert, FCDO Sharon Huws, Queen's University Belfast
United States	Claire Cvitanovich, USDA April Leytem, USDA-ARS Marlen Eve, USDA-ARS Hero Gollany, USDA-ARS James Dobrowolski, USDA-NIFA Kate Ivancic, USDA-OSEC Kelly Maguire, USDA-ERS Luis Tupas, USDA-NRCS Raul Brens Jr, USDA Cynthia Rosenzweig, AGMIP
Uruguay	Cecilia Jones, MGAP Cecilia Gianoni, PROCISUR Sofía Chápper, IICA
Viet Nam	Hoang Anh Le, Ministry of Agriculture and Rural Development of Vietnam Van Tuat Nguyen, Vietnam Plant Protection Association
Zimbabwe	Dumisani Kutwayo, Department of Research and Specialist Services Lawrence Mashungu, Climate Change Management Department Tapiwa Junior Kamuruko, Ministry of Environment, Climate, Tourism and Hospitality Industry
Partners	
CABI	Jonathan Casey, Climate Change Manager
CARDI	Ansari Hosein, Manager, Science, Technology and Innovation
CCAC	Catalina Etcheverry, Coordinator
CGIAR	Louis Verchot, Research Leader
CIHEAM	Ana María Sánchez Gómez, Principal Administrator
EC	Marc Duponcel, Head of Sector Research Matthias Leonhard Maier, Planning and Programming Officer Orsolya Frizon Somogyi, Deputy Head of Unit Valerio Abbadessa, Research Programme Officer
FACCE-JPI	Heather McKhann, Coordinator
FAO	Henning Steinfeld, Chief NSAL
FONTAGRO	Eugenia Saini, FONTAGRO
SAI Platform	Rob Meyers, VP Sustainable Agriculture
World Farmers' Organisation	Ambra Raggi, Policy Officer Arturo Turillazzi, Intern Giovanna Amelio, Policy Officer
Research Group Co-Chairs	
Ladislau Martin-Neto, Croplands Research Group - Brazil Mark Liebig, Croplands Research Group - USA Jean-Francois Soussana, Integrative Research Group - France Pamela Joose, Integrative Research Group - Canada	

Matthew Bartlett, Integrative Research Group - Australia
Harry Clark, Livestock Research Group – New Zealand
Richard Dewhurst, Livestock Research Group - UK
Sinead Waters, Livestock Research Group - Ireland
Alvaro Roel, Paddy Rice Research Group - Uruguay
Ghislain Kanfany, Paddy Rice Research Group - Senegal
Yasukazu Hosen, Paddy Rice Research Group - Japan

GRA Secretariat

Abby Robinson, New Zealand
Ackim Mwape, New Zealand
Deborah Knox, New Zealand
Ekaterina Bessonova, Ryan Institute NUI Galway
Hayden Montgomery, GRA Special Representative
Heather Went, New Zealand
Séga Ndao, Senegal
Veronica Ellis, New Zealand
Joanne Monjol, New Zealand